WHAT IS CLAIMED IS:

1. A method for analyzing the capacity of an application executing on a parallel processing system and expressed as a graph of vertices, comprising the steps of:

   (a) creating a description of the sizes of data records throughout the graph;

   (b) creating a performance description of each vertex in the graph;

   (c) determining an execution time for each vertex in the graph;

   (d) determining counts of data records assigned to corresponding vertices in the graph; and

   (e) creating a description of the total execution time and performance of the system based on the determined execution time and counts of data records.

2. The method of claim 1 further comprising the steps of:

   (a) creating multiple descriptions of the total execution time and performance of the system based on multiple input data sets; and

   (b) creating a comparison of the multiple descriptions.

3. A method for analyzing the capacity of an application executing on a parallel processing system and expressed as a graph of vertices and links given a set of supplied values, comprising the steps of:

(a) creating a description of the vertices and links of the graph including connections between vertices and links, data processing rates, and amounts of data;

(b) generating performance characteristics of the application based upon the description, and the set of supplied values, including total execution time, resource requirements, and capacity of the application;

(c) providing a means such that the supplied values can be altered, creating altered values; and

(d) re-generating performance characteristics of the application based on the altered values.

4. The method of claim 3 further comprising the steps of:

(a) accepting multiple sets of supplied values;

(b) generating performance characteristics of the application for each set of supplied values;

(c) calculating sets of estimated values by applying trend equations to the multiple sets of supplied values;

(d) generating performance characteristics of the application based on the estimated values; and

(e) displaying the performance characteristics based on each set of supplied values and based on the estimated values.

5. A method for analyzing the capacity of an application executing on a parallel processing system and expressed as a graph of vertices and links given a set of supplied values, comprising the steps of:

(a) creating a description of the vertices and links of the graph including connections between vertices and links, data processing rates, and amounts of data;

(b) generating performance equations based upon the description which will calculate performance characteristics of the system including total execution time, resource requirements, and capacity of the application;

(c) applying the performance equations to the supplied values;

(d) providing a means such that the supplied values can be altered, creating altered values; and

(e) applying the performance equations to the altered values.

6. The method of claim 5 further comprising the steps of:

(a) accepting multiple sets of supplied values;

(b) applying the performance equations to each set of supplied values;

(c) generating trend equations based upon the multiple sets of supplied values;

(d) calculating sets of estimated values by applying the trend equations to the multiple sets of supplied values;

(e) applying the performance equations to the estimated values.; and

(f) providing a means of displaying the supplied values, the estimated values, and stored results.

7. A computer program for analyzing the capacity of an application executing on a parallel processing system and expressed as a graph of vertices and links given a set of supplied values, the computer program being stored on a media readable by a computer system, for configuring the computer system upon being read and executed by the computer system to perform the functions of:

(a) creating a description of the vertices and links of the graph including connections between vertices and links, data processing rates, and amounts of data;

(b) generating performance characteristics of the application based upon the description, and the set of supplied values, including total execution time, resource requirements, and capacity of the application;

(c) providing a means such that the supplied values can be altered, creating altered values; and

(d) re-generating performance characteristics of the application based on the altered values.

8. The computer program of claim 7 further comprising the functions of:

(a) accepting multiple sets of supplied values;

(b) generating performance characteristics of the application for each set of supplied values;

(c) calculating sets of estimated values by applying trend equations to the multiple sets of supplied values;

(d) generating performance characteristics of the application based on the estimated values; and

(e) displaying the performance characteristics based on each set of supplied values and based on the estimated values.

9. A computer-readable storage medium, configured with a computer program for analyzing the capacity of an application executing on a parallel processing system and expressed as a graph of vertices and links given a set of supplied values, where the storage medium so configured causes a computer to operate in a specific and predefined manner to perform the functions of:

(a) creating a description of the vertices and links of the graph including connections between vertices and links, data processing rates, and amounts of data;

(b) generating performance characteristics of the application based upon the description, and the set of supplied values, including total execution time, resource requirements, and capacity of the application;

(c) providing a means such that the supplied values can be altered, creating altered values; and

(d) re-generating performance characteristics of the application based on the altered values.

10. The computer-readable storage medium of claim 9 further comprising the functions of:

(a) accepting multiple sets of supplied values;

(b) generating performance characteristics of the application for each set of supplied values;

(c) calculating sets of estimated values by applying trend equations to the multiple sets of supplied values;

(d) generating performance characteristics of the application based on the estimated values; and

(e) displaying the performance characteristics based on each set of supplied values and based on the estimated values.

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